REPORT

ON THE

DEPARTMENT OF AGRICULTURE

ST. LUCIA.

1941.

[Price Sixpence.]

ST. LUCIA.
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1942.

REVISED PRICES OF NURSERY PLANTS AND SUPPLIES.

1. The prices of plants do not include the cost of the box or package, for which a charge will be made if not returned to the Department. The cost of delivery will, as far as possible, be included in the prices, but it must be understood that this is a matter entirely in the discretion of the Agricultural Superintendent.

2. All prices specified are for plants of standard quality. The prices of plants not included in this list will be fixed by the Agricultural Superintendent.

3. An addition of 100 per cent. is made on the price of all plants supplied for export from the Colony.

4. No plants are supplied on Public Holidays.

5. At least six months previous notice must be given when large numbers of such plants as bananas, coconuts, coffee, cacao, nutmegs, citrus, cane plants, &c., are required. All such orders should be in writing, and verbal or telephone messages should be confirmed in writing. In default of this rule such orders may not be attended to.

6. All orders will be supplied subject to the discretion of the Agricultural Superintendent and no responsibility is taken in regard to quality or quantity of plants after despatch from the Nurseries.

7. Complaints as to the quality or quantity of plants, &c., supplies, or as to the prices charged, should be made in writing to the Agricultural Superintendent at the time of delivery.

ALL PLANTING MATERIAL MUST BE PAID FOR BEFORE DELIVERY.

I. PLANTS.

	s.	*d.*	
Banana Plants (sections or suckers)		1	per plant (delivered at Quilesse Nursery)*
Oranges Budded		4	per plant.
Oranges Sour		6	per hundred.
Grapefruit Budded		4	per plant.
Lime Plants Budded/Grafted		4	per plant.
Mangoes Budded/Grafted		6	to 1*s.* per plant.
Coffee Plants	1	0	to 2*s.* per hundred.
Cacao Budded		6	per plant.
Nutmegs Grafted		6	per plant
Avocado Pears		2	to 3*d.* per plant.
Avocado Grafted		6	per plant.
Cane Plants	1	0	per hundred (delivered at Nursery)
Pineapple Plants		1	to 3*d.* per plant.
Casuarina	2	0	per hundred.
Casuarina (in pots)		1	each.
Palms (various)		3	per plant.
Ornamental Plants (various)		2	to 1*s.* per plant.
Seeds (various)			and 3*d.* per packet.
Plants for windbreaks, hedges, &c., other than the above mentioned	2	0	per hundred.
Plants for windbreaks, hedges, &c., other than the above mentioned (in pots)		1	each.
Fodder Plants	1	0	to 2*s.* per hundred (delivered at Nursery)
Cover Crops and Green Manures		2	per lb.
Grass	1	0	per sugar bag.

* Transport charges from Quilesse to Mahaut to point of delivery are extra.

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SAINT LUCIA.

Report of the Department of Agriculture for the year ended December 31st, 1941.

AGRICULTURE IN THE COLONY.

Introduction.

1. Peasant agriculture has suffered from considerable neglect following the commencement of two United States Air Bases in the Colony early in the year. Direct and indirect employment associated with the development of these Bases, as well as the revival of the ship coaling trade, has resulted in a period of prosperity unparalleled in the Colony's history, especially for the working class people. Many estates have been unable to obtain sufficient labour to carry on their work.

Weather Conditions.

2. Hot, dry weather characterised the first half of the year, particularly in the northern and southern extremities and the coastal areas, and unusually sultry spells occurred during the period July to October; November and December were comparatively cool. Rainfall distribution was more normal, although in the northern and southern coastal areas the dry season extended from December, 1940 to June, 1941 with a pronounced drop again in December, 1941. No floods occurred.

GENERAL CONDITIONS AND PROGRESS IN THE CHIEF INDUSTRIES.

Sugar.

3. A record crop was obtained this year in spite of the severe damage caused to cane areas by the floods of August, 1940. Yields of cane on all estates were appreciably higher except at Vieux-Fort, where prolonged dry weather affected the growth of the crop.

4. A total of 91,181.6 tons of cane was ground by the four factories yielding 10,125.48 tons of sugar, as compared with 71,585.2 tons of cane ground and 8,026.1 tons of sugar produced in 1940. The extraction ratio was 1 ton of sugar from 9.28 tons of cane, that for 1940 being 1 ton of sugar from 9.33 tons of cane; a large proportion of the crop was produced at a ratio of 1 : 8.37. The highest and lowest extractions were 1 ton of sugar from 8.37 and 10.2 tons of cane respectively. The acreage of canes reaped was 9 per cent more than in 1940.

5. B.H. 10/12 and B. 2935 are the predominant varieties under cultivation at present, with small areas under B. 726 and an increasing area under B. 3439, recognised as a promising early variety. Planting material of the commercial seedlings B. 35187, B. 35245, B. 37161, B. 34104 have been distributed to all estates as some of these varieties have proved very successful in neighbouring islands.

6. All estates were engaged in further factory improvements preparatory to the 1942 crop, although the major replacements and alterations planned for the Barbados Settlement Coy., Vieux-Fort, were temporarily abandoned on account of the acquisition of land from the estate for the U.S. Air Base at Vieux-Fort.

7. The system of continuous planting of cane, commenced in 1940 has so far proved very successful, resulting in higher acreage yields.

8. The average f.o.b. price of sugar was £11 6 0 per ton as compared with £9 18 6d per ton in 1940.

Molasses and Rum.

9. The quantity of molasses produced was 342,600 gallons, as against 277,391 gallons in 1940; the bulk of this was converted into a record amount of rum.

10. Production of fancy molasses was slightly below last year's figure, but the industry received some encouragement from a firm contract made with an American company for the 1941 crop; the unsold balance of the 1940 crop was also disposed of to the same company.

11. Production and export of sugar manufactures for the year are shown below:—

Product	Produced	Exported	Value £
Sugar ...	10,125·48 tons	8,812 tons	93,342
Molasses ...	342,600 gals.	60,215 gals.	692
Fancy Molasses ...	33,644 ,,	61,088 ,,	3,159
Rum ...	70,876.8 ,,	21,299.6 ,,	2,935
Total value ...	...	...	£100,128

Limes.

12. A welcome recovery was made by this industry. The first flowering was affected by the dry weather, but light showers during the following months aided fruit setting, and plantations were also fairly free from citrus weevil and wither-tip disease, resulting in a better crop being obtained than last year. Production for 1941, estimated in barrels of limes, was 25,251 barrels valued at £17,609 as compared with 15,895 barrels valued at £7,303 in 1940. There was an active demand for distilled lime oil and settled juice, and very satisfactory prices were obtained. Distilled lime oil marketed through the West Indian Lime Oil Sales Company, Trinidad, realised an average price of around 33*s*. per lb., c.i.f.

13. The Citrus Entomologist continued his observations on the incompatibility of the West Indian lime on sour orange stock, and in March recommended that in future the wild grapefruit stock should be used instead. Lime growers accepted this recommendation, but it was then too late for the Department to make the change in time for the 1941 planting season; very few budded lime plants were therefore distributed.

14. Exports of other lime products during the year were as follows:—

Green limes	...	1,736 barrels
Lime juice, settled	...	35,200 gallons
Lime Oils:		
Distilled	...	8,851 lb.
Handpressed	...	535 ,,

Coconuts.

15. The markets for coconuts and copra improved as the year advanced and prices showed a steady increase. During the latter part of the year a large part of the copra output was shipped under contract to the Barbados Co-operative Cotton Factory for processing into edible oil, at a price equivalent to £14 per ton f.o.b. Only one local factory (with primitive equipment) was in regular operation at the end of the year. The bulk of the coconuts was shipped to the U.S.A.; shipments to Canada were small in comparison with previous years, but increased quantities were shipped to Barbados.

16. Negotiations were reopened with the Trinidad Coconut Growers' Association concerning the processing of copra from this Colony into edible oil for local consumption, and a contract was agreed upon to commence from 1st January, 1942. With the large increase in copra manufacture necessitated by this contract and distributed throughout the year, more attention will have to be given to artificial drying of copra.

17. Drought conditions which prevailed in several coastal areas during the latter part of 1940, and the early months of 1941 were reflected in the size of the nuts, which were smaller than usual; some estates also experienced poorer yields.

18. The area under the crop has been decreased by about 400 acres due to the acquisition of coconut estates for the American Air Bases, and is at present estimated at 4,600 acres ; this decrease represents an annual loss of about 250 tons of copra.

19. A small soap factory was commenced in Castries in October and is making fairly good progress.

20. The export of coconuts and copra during 1941 was as follows:—

Coconuts	...	3,977,772	nuts valued at	£11,070
Copra	...	270	tons valued at	2,583
Total value	...	...		£13,653

Cocoa.

21. The main crop was again late and below expectations in the coastal areas owing to prolonged dry weather, but better yields were obtained from plantations in the wetter areas.

22. Exports amounted to 3,889 cwt. valued at £6,300 as compared with 6,008 cwt. valued at £10,316 in 1940. The 35 per cent. decrease in exports during 1941 is to some extent due to an increasing consumption of cocoa locally, mainly in the form of local stick chocolate. Local prices offering were from 38*s.* to 45*s.* per cwt. for estate cocoa, and around 3½*d.* per lb for peasants' cocoa. Of the total exports 66 per cent. went to Canada, 13 per cent. to the United Kingdom, 12 per cent. to Barbados and 5 per cent. to British Guiana.

Bananas.

23. Considering the difficulties encountered during the past year, by way of irregular shipping facilities often at short notice, shortage of trucks (engaged on other more remunerative work at the American Bases) for inland transport and increased labour expenses, exports exceeded expectations and were not far below the figure estimated. The general quality of the fruit was good, and the percentage of rejects low.

24. Some increase in the incidence of Panama Disease is recorded, probably due to plantations not receiving adequate attention, although the Banana Instructor and other travelling officers of the Department constantly toured banana areas urging better cultural methods.

25. Production for the year was estimated at 60,000 stems, and details are as follows:—

9s.	8s.	7s.	6s.	Total	Counts	% Counts	Rejects	% Rejects
15,033	16,864	24,750	176	56,823	40,100	70.5%	2,226	3.1%

26. It is roughly estimated that the area under bananas is around 675 acres, a decrease of 20 per cent. on the acreage of 1940.

27. Prospects for 1942 are marred by the uncertainty of shipping facilities, and no production estimate is possible.

MINOR AGRICULTURAL INDUSTRIES.

Fresh Fruit Trade.

28. Lack of regular shipping facilities has again restricted the export trade with Bermuda, but alternative markets have been maintained and developed in some of the neighbouring islands, particularly Barbados, connected by fairly regular schooner traffic. Increased local consumption of vegetables and fresh fruit, however, undoubtedly absorbed a considerable part of any surplus which might otherwise have been available for export. Mangoes and avocado pears were the principal fruits exported, and there was a substantial increase in the export of tamarinds in syrup.

29. Mention might be made of the decision to close, at the end of the year, the organisation known as the Government Marketing Depot which, since its inception, was in reality a fruit packing shed.

30. Export figures and values for 1941 are as follows:—

——	Mangoes	Avocado Pears.	Tamarinds	Miscellaneous*
Quantity (crates) ...	7,036	2,585	58,538 (lbs),	4,891 (pkgs.)
Value £ ...	1,377	507	300	1,213

*Grapefruit, lemons, oranges, pineapples, and mixed fruits.

Vegetables and Ground Provisions.

31. Produce to the value of £1,134 was exported during the year, as compared with £1,193 in 1940, the principal items being pumpkins, farine and plantains.

32. Although strenuous efforts were made by the Department to maintain increased food production, the cultivation of food crops was not as extensive as in 1940 due to the greater attraction of work on the United States Bases. Sales of fresh vegetable seeds (notably lettuce, cabbage, and carrot) were, however, good, and during the latter part of the year there was an encouraging increase in fresh vegetable production in the Soufrière Quarter to meet the demand from the American Bases.

Cotton.

33. Some 45 acres of the St. Vincent Superfine V 135 strain of cotton were planted for the 1940-41 crop, but dry weather in the early stages impeded normal growth. A severe outbreak of the pink bollworm occurred in the Choiseul Quarter soon after bolling commenced. Altogether yield results were disappointing and the ginning out-turn was only 24 per cent. These factors combined with the increased demand for all types of Sea Island Cotton, led to the decision to return to the cultivation of the Montserrat strain, and some 45 acres have been planted for the 1941-42 season. 21,399 lb. of seed cotton were purchased at the local ginnery, from which 5,159 lb. of lint were obtained. Yield of lint varied from 77 lb. to 173 lb. per acre. All lint was purchased by the British Government at brokers' valuation; so far 1*s.* 10*d.* per lb. has been paid, but it is possible that a further slight ncrease may be obtained. Cotton exported during 1941 amounted to 5,159 lb. valued at £537.

34. A close season for cotton was observed from 8th April to 31st August under the Cotton Ordinance.

Other Crops.

35. *Corn*—Production was on a much smaller scale than in 1940 in common with other peasant agriculture, owing to employment offering at the Bases. The price of corn has increased and it is hoped that increased planting will be made again during 1942.

Coffee—Local coffee is finding a ready sale at from 8*d.* to 10*d.* per lb., and several estate owners are increasing their area under this crop.

Tobacco—Small areas of tobacco were cultivated by one or two estate owners for local consumption, but there is little likelihood of further expansion at present.

Spices, etc.— More attention is being given to the cultivation and marketing of ginger, vanilla, nutmegs, mace, and kola nuts, following better prices offering for these minor crops, the total value of which during 1941 was £630.

Bee-Keeping

36. Encouraged by a firm market and an increased quota more interest has been shown in bee-keeping. A good honey flow occurred and large quantities of honey were collected, with a total crop second only to that of 1926—the record year. With the co-operation of the United States Army Authorities a local estate owner was able to obtain a consignment of Italian queen bees in excellent condition by air from America, via Trinidad.

37. Exports amounted to 107,884 lb. of honey valued at £1,904 and 155 lb. beeswax valued at £6 (1940—85,827 lb. honey valued at £1,913 and 180 lb. beeswax valued at £8)

Forest Products.

38. The total value of export forest materials was £1,664 as compared with £2,174 in 1940.

39. All classes of local timber have been in continuous and heavy demand throughout the year, and already there are indications that the more popular local timbers are getting scarce. Large numbers of Gommier trees are to be found in most areas and more use will have to be made of this timber, which is regarded as suitable for scantlings and boards in Trinidad, provided it is not exposed to the weather.

Fishing Industry.

40. Supplies of fish were seldom obtained in really adequate quantities, more often they failed to satisfy the increased demand. This was due to the difficulty of obtaining sufficient catches within reasonable distance of the coast, and the fact that most of the fishermen found employment at the American Bases instead.

Livestock.

41. Captain H. V. M. Metivier, O.B.E., B.Sc., M.R.C.V.S., Senior Veterinary Officer, Trinidad, paid a welcome visit to the Colony from 19th July to 26th July inclusive, in his capacity as veterinary adviser. Most of his time was spent in visiting estates, and discussing problems and giving advice to owners on the spot; before leaving he addressed a special meeting of the St. Lucia Agricultual and Commercial Society. The thanks of the Department and of local stock owners are due to him for this visit, and for the valuable advice he continues to give by correspondence.

42. At no time has this industry had better opportunities for development, particularly amongst peasant proprietors who are prepared to give proper attention to the feeding and maintenance of stock. The type of pasture encountered in this Colony is too poor to maintain animals in good condition throughout the year; perennial fodder grasses must be planted to supplement this grazing.

43. A rapid increase in meat consumption coincided with the commencement of the American Bases at the beginning of the year and the greater spending power of the working classes. As a result of this it became necessary to terminate the export trade in livestock recently established with Trinidad, and to prohibit the export of all cattle in July, and later to prohibit the export of any animals. Local stock, however, were quite inadequate to meet the demand, and towards the end of the year it was evident that the industry would have to be further protected by prohibiting the slaughter of all female cattle, except those which are barren or too old for further breeding. Abundant scope now exists for the raising of livestock for the local market, and is likely to continue for several years ahead. A liveweight price was fixed for all animals to encourage and protect the producer.

44. A local stock-owner commenced sausage making on a small scale, using imported casings, and soon found a large demand for this type of sausage.

45. An acute epidemic of Swine Fever swept through the Colony during the latter half of the year resulting in an estimated mortality of 90 per cent. of the pig population. The disease was first reported from the Gros Islet district in July, where animals were found to be dying from symptoms which soon pointed to Swine Fever, and was subsequently confirmed as such by the Senior Veterinary Officer, Trinidad. Efforts to prevent the spread of the disease failed mainly due to the uncontrolled system of pig keeping customary in the Colony, but also due to the lack of staff and difficulty of easy and quick access to the areas concerned. The southern half of the Colony remained free until September, when an outbreak occurred in the Vieux-Fort district and rapidly spread from there. The disease was on the wane by the end of the year. While the exact source of the disease cannot definitely be stated, there seems strong reason to believe that it emanated from the American Bases. The disease has never been reported in this Colony before.

46. Exports of stock during the early part of the year were as follows:—

	1941	
	Quantities	*Value*
		£
Poultry	267	19
Pigs	76	94
Cattle	16	94
Goats	3	1
Sheep	31	12
Horses	29	119
Asses	2	6
Mules	13	78
Total		£423

47. Several importations of improved breeding stock were made by estate owners chiefly from the Government Stock Farm in Trinidad.

Animal Inspection Service.

48. Animal importations into the Colony during the year under review were as follows:—

Poultry & game	100
Sheep & goats	5
Horses & donkeys	6
Dogs	5
Cattle	3
Pigs	2
Rabbits	6

Eight (8) export certificates were issued for animals leaving the Colony, and four (4) certificates in connection with the export of hides and skins.

SOIL AND FOREST CONSERVATION.

(a) *Crown Lands Allocations.*

49. During 1941 a total of forty-six (46) applications for Crown Lands were received from the Crown Lands Department for inspection, which together with eighteen (18) applications brought forward from 1940, amounted to sixty-four (64); of these thirty-two (32) were approved and thirteen (13) rejected, while nineteen (19) were carried forward to be inspected early in 1942. Details of this work are as follows:—

	1—5	*6—10*	*Total acres*
	Acre units	*Acre units*	
Approved ...	8	24	225¾
Rejected ...	6	7	60.20 p.

50. Following the decision of Government to accept the recommendation of the Inspector-General of Agriculture not to sell any more Crown Lands, it was decided in December not to accept any further applications for the purchase of Crown Lands. Terms and conditions for the perpetual lease of Crown Lands are being considered, but it will be necessary to find, if possible, reasonably large contiguous and suitable areas, in order to reduce the costs of major anti-erosion works on land to be leased by the Crown, and to avoid the alienation of single scattered holdings.

(b) *Soil Conservation*

51. Soil conservation has been intimately associated with the activities of the Department during the year as usual. Considerable impetus was given to this subject by the Inspector-General of Agriculture during his visit here in February, when he pointed to the poverty which erosion had already wrought among rural communities in most districts of the Colony, and sounded a loud note of warning for the future. Although there is again little progress which can be recorded, it is encouraging to feel that the more responsible estate owners are beginning to realize the need for some protection of their lands against erosion; unfortunately, lack of

funds may prevent some of them from carrying out such work. One of the local sugar companies commenced large scale soil, conservation measures, under the guidance of this Department, on the very steep and unprotected hillsides above their cane-fields, and the company intends to continue this work annually until completed.

52. The acre demonstration plot commenced by the Department in 1940 is showing the advantages of even simple soil conservation measures, and is providing much useful information preparatory to commencing larger demonstration areas. The Allotment Scheme at Canaries, where contour banking is regularly practised, is proving very successful and serves as a valuable demonstration in that district.

53. With a view to providing information on the dry season flow of the Union River, measurements were taken from February to June using a 12" rectangular weir; some figures were also obtained for the Castries and Corinth Rivers.

(c) *Forest Conservation*

54. Two forest patrols are permanently employed in preventing trespass and forest offences in the Crown forest areas, and are justifying their employment. They were responsible for several prosecutions under the Crown Lands Regulations.

55. Reafforestation on a small scale continues in the important catchment areas. Teak planting has been suspended for the present owing to the difficulty of finding suitable conditions for this tree; Honduras mahogany continues to make excellent growth although damage from shoot borer has commenced. Best results are likely to be obtained with local timber species, but great difficulty is being experienced in obtaining sufficient seed of Laurier spp. It is hoped that approval will be obtained in 1942 to the scheme for the survey and escheat of all vacant lands in the Colony.

56. Timber cutting on the dry, exposed and eroded hillsides of the windward and northern districts has been more active than for some years due to the increased demand and selling price of charcoal and fuel; this is on private property but is to be regretted for obvious reasons.

Importation of Foodstuffs.

57. The decrease in local production of foodstuffs combined with the greatly increased purchasing power of a large section of the population resulted in very large increases in all classes of imported foodstuffs, with the exception of cornmeal, coffee and pulses; only a small quantity of cornmeal was imported due to extensive production and carry over from the 1940 season.

58. It is doubtful to what extent the position will improve while regular employment on the American Bases and in the coaling trade continues, unless some practical method of compulsory planting can be introduced.

WORK IN THE DEPARTMENT OF AGRICULTURE.

Plant and Seed Introduction, etc.

59. Introduction of planting material during the year comprised 8½ lb. and 20 packets of seed, and 260 plants, roots and cuttings, including 10 new sugar cane varieties; a regular supply of vegetable seeds was maintained for local sale. Details are as follows:—

Phaseolus mungo	Seeds	Trinidad.
,, radiatus	,,	,,
Caesalpinia Coriara	,,	,,
Peltophorum ferrugineum	,,	,,
Rice (Salt tolerant)	5 varieties	,,
Eschalot	Bulbs	,,
Sugar-cane	19 varieties (38 cuttings)	,,
Egg Plant	Seeds	Puerto Rico
Cucumber	,,	,,
Squash	,,	Barbados
Emenochloa ophuriodes	Seeds and Cuttings	Trinidad.
Digitaria sp.	,, ,,	,,
Mauritius Pea	,,	,,
Pusa Pigeon Pea No. 69	,,	,,

Bush Bean (Idaho Refugee)	Seeds	U.S.A.
Lecythis Zabucajo	,,	Trinidad.
Bougainvillea sp.	Cuttings	,,
Thunbergia sp.	,,	,,
Demerara Primrose	,,	,,
Hibiscus sp.	,,	,,
Gerbera sp.	Seeds and Plants	,,
Passiflora sp.	Seeds	,,
Lasiba Pigeon Pea	,,	,,
Torenia sp.	,,	,,
Edua Pea	,,	Jamaica

60. The Plant Inspection Service dealt with a total of 28 importations exclusive of those mentioned above; of these, 4 received treatment prior to delivery and one was destroyed. 22 certificates of inspection were furnished for planting material leaving the Colony.

61. The distribution of planting material from the Department Plant Nurseries during 1941 is shown below :—

	Plants.	*Cuttings*	*lb.*
Budded limes ...	286	...	...
Other citrus * ...	2,717	...	...
Other fruit ...	448	...	...
Cocoa & spices ...	1,928	...	...
Cane & corn ...	15,400	...	...
Fodder & pasture grasses ...	2,500	3,414	...
Other grasses ...	14,000	...	...
Cover crops ...	196	...	$22\frac{1}{2}$
Forest trees ...	374	...	...
Ornamentals ...	679	...	...
Miscellaneous ...	15,845	...	4

* Includes 950 wild grapefruit seedlings mainly for nursery work.

Work at the Union Agricultural Station

62. The Guatemala Grass manurial trial was continued until August, when a total of 9 cuttings was completed extending over a period of 16 months; though results showed no significant differences, it is of interest to record that an average yield of 4.46 tons of fodder per acre was obtained per cutting.

63. The collection of sweet potato varieties was given a dry season trial, and further clamping experiments were done; as a result of these investigations, the following varieties were selected and will be maintained at the Station for distribution — B. 20, B. 33, B. 34, B. 44, B. 52, V. 52 and Black Rock.

64. Adlay (*Coix lachryma-jobi)* is still under trial, and two plots are due for reaping in early 1942 ; despite a poor start, a fair yield is expected. Small scale hulling trials resulted in a yield of hulled grain of 50 per cent ; the grain milled well, and mixed with wheaten flour, gave an attractive and tasty bread.

65. Yams were planted on a fairly large scale to provide planting material for distribution in 1942 ; varieties included Barbados and Native Lisbon, Coconut Lisbon, Hunt, Horn, Chinese or Potato, and the local varieties "Red Yam", "Water Yam", "Yam Piquant" and "Yam à Tous Temps". All varieties yielded well, and the area under this crop is to be extended in 1942. Mention must be made of the "Yam Piquant" which, if carefully cut in August—September and the "head" and vine left undisturbed, will give a further cutting in December ; of the total yield of this variety the early cutting represented 65 per cent. subsequent growth amounting to the remaining 35 per cent.

66. Two more plots of I.C. 2 banana were planted during the year ; the three plots now growing have established well and made good growth.

67. Other crops grown for observation and multiplication comprised the following—

Kudzu Vine (*Pueraria thunbergiana*). Slow growth was made after the dormant period noted in last year's report, and at no time during the year could growth be said to have been luxuriant.

Tepary Bean (*Phaseolus acutifolius*). A yield equivalent to 230 lb. per acre was obtained.

Soya Bean. No germination was obtained from seed reaped at the station in 1940, and a further supply had to be imported: growth was fair, the yield being equivalent to 480 lb. per acre.

Cowpeas. "Dixie Queen" Cowpea, with a yield equivalent to 103 lb. per acre, slightly outyielded "Extra Early Ramshorn".

Barbados Squash. An introduction from Barbados, this variety has proved both hardy and prolific, yielding well and regularly under all conditions.

Pigeon Peas. Comprised 5 varieties—Trinidad selected, Pusa, Lasiba, and two local selections. A plot of *Derris Elliptica*, Amani strain, made good growth and will be extended in 1942.

Green Gram (*Phaseolus radiatus*). Does well at the Station and is being increasingly used for ground cover and green manuring. The seed is also valuable as a poultry feed when kibbled.

The Citrus Orchards are being maintained as inexpensively as possible pending the planting of these areas to fodder production in conjunction with the proposed dairy scheme for Union Station. Bird damage again caused heavy losses in the orange plots.

Mangoes have continued to flourish and bear well, with the exception of *Ennuna*.

The Sugar Cane varieties were transferred to a suitably laid out permanent plot in Section 3; new introductions were planted out, and 90 plants were distributed.

Government Stock Farm, Union Station

68. All animals have kept good health and condition; the pure bred Holstein Bull was disposed of in Trinidad on account of age, and is to be replaced in 1942. Two young Large Black Sows were introduced from Trinidad in June, and have made good progress. Strict quarantine was imposed on the pigs for the latter half of this year as a result of the outbreak of Swine Fever in the Island and, though the disease caused almost 100 per cent. mortality in the district, the Farm animals were unaffected.

69. Twenty-nine (29) Large Black piglings were bred and sold from the Farm during the year.

70. The purchase of a pen of Rhode Island Red poultry (dark strain) was effected towards the end of the year; the birds were retained in Trinidad pending the arrangement of suitable accommodation early in 1942.

71. It is hoped that a breeding unit of Flemish Giant rabbits will be established at the Farm in the near future.

72. The Farm was visited in June by Captain H .V .M. Metivier, O.B.E.; B.Sc., M.R.C.V.S., Senior Veterinary Officer, Trinidad.

73. An additional area of Uba cane—approximately ¾ acre—was planted in June.

74. The return of tours and station services is set out below :—

	Jack Donkey	Thoroughbred Stallion	¾ Holstein Zebu Bull	Sussex Bull	Holstein Bull	Large Black Boar (1)	Large Black Boar (2)
Station Services ...	16	34	...	20	...	5	14
No. of tours ...	5	1	4	...	1	...	...
Days on tour ...	196	31	357	...	62	...	...
Outstation Services ...	29	1	22	...	2	...	...

Plant Nurseries.

75. The Departmental Nurseries at Union, Rabot and Barre-de-l'Isle were engaged in the propagation of citrus and other economic crops for distribution; the Quilesse Nursery raises seedlings of local and introduced forest trees for annual reafforestation work. Strict attention is given to soil conservation methods in all the Nurseries.

Pests and Diseases.

76. The following summarised report has been prepared by Mr. R. G. Fennah, M.A., A.I.C.T.A., F.R.E.S., Citrus Pest Entomologist, covering his work during the year.

77. *Citrus Weevils* (*Diaprepes spp.*) In 1940 egg-parasites of *Diaprepes* became abundant soon after the beginning of the annual period of oviposition, while the amount of egg-laying on the part of the weevil was not great. It was accordingly expected at that time that weevil larvæ occurring in plantations in 1941 would be few. This view proved subsequently to be correct. In fact the correlation between the abundance of egg-masses and of egg-parasites and the subsequent abundance of weevil larvæ—and, by extension larval damage—has been found to hold good since egg-mass surveys were started in 1937.

78. During 1941 the amount of egg-laying has been small as compared with that of 1936, one of the years of serious abundance. Egg-parasites were scarce in May, when *Diaprepes* began to oviposit, but by July, when egg-laying was drawing to a close, parasitism of egg-masses in four areas averaged nearly 56 per cent.

79. Experimental work in the period under review included studies on the bionomics of the weevils, and trials of sprays designed to deter adults from ovipositing on citrus.

80. *Scale-Insects.* With regard to scale-insects it was established that their heavy incidence on budded limes in the Island was correlated with a partial incompatibility which has been found to exist between a scion of West Indian lime and a stock of Sour Orange. It was realized that the primary step in their control is the use of a compatible stock at the outset, a measure which at the same time would enhance the degree of tolerance of the tree to attack by the larvæ of *Diaprepes*. The further use of sour orange as a stock for lime was accordingly condemned, and in its stead wild grapefruit was suggested as the most promising, under Windward Islands conditions, of several alternatives. In areas where the soil is light irrigation of citrus fields during dry spells is considered to be of considerable importance in lessening the likelihood of outbreaks of scale-insects.

81. *Seedling Limes.* In May a group of dead or dying seedling limes, of considerable age, was examined on an estate in the northern part of the Island. In every case the circumstances pointed to excessive water loss, coupled with an exiguous moisture supply doubtless made more acute by severe root competition, as the principal cause of failure.

82. Early in the year the writer considered the possibility that young rootlets of lime trees, as they were newly produced, might be infected by spores carried into the soil by rain, from shoots, fruit, and leaves attacked by Wither-tip disease. Several young seedling lime trees (about a foot high) were transplanted into glass pots, with the root system close to the side so that new rootlets were visible. The soil was then sprinkled with rain water heavily charged with spores of Wither-tip disease. A fresh suspension of spores was applied once a week for a month, while some of the new rootlets were scratched with a needle to facilitate entry of the spores. The result of these attempts to secure infection was entirely negative, and all rootlets continued to develop vigorously.

83. Miscellaneous pests investigated in the Island during the year include Mole-Cricket (chiefly *Scapteriscus vicinus* Scud.) attacking the sprouting 'eyes' of sugar-cane, the Tettigoniid *Conocephalus saltator* (Sauss.) on Kudzu vine, *Heliothis virescens* (F.) and *Elasmopalpus rubedinellus Zellas* boring in of Pigeon pea (*E. rubedinellus* was parasitised by the Braconid (*Microbracon thurberiphagae* Mues.); on maize, *Diatraea* sp., *Laphygma frugiperda* A. and S., *Heliothis obsoleta* F. and the Araeopid *Peregrinus maidis* (Ashm.) and *Corythuca gossypii* F. on string beans.

84. Panama Disease (*Fusarium cubense*). The campaign against this disease continued more particularly during the drier months, but in the latter part of the year the inspection staff had to be seconded to assist in controlling the Swine Fever epidemic. The incidence of Panama Disease as revealed by the 1941 survey was 5.41 per cent. an increase of 1.40 per cent. over the previous year. The percentage of diseased plants in new gardens up to 3 years old was 2.98 per cent. the corresponding figures for old gardens over 3 years old being 5.95 per cent.

Agricultural Extension and Education.

85. Regular contact was maintained with the peasantry in all districts of the Colony, and advice and assistance was given on agricultural and rural matters wherever possible. Another satisfactory year can be recorded on the Canaries

Allotment Scheme. A Rice Allotment Scheme a few miles from Vieux-Fort town, comprising 21 half-acre plots, was commenced in June, and has proved very successful. The top-working and grafting of mango and citrus seedling stocks was in continuous demand by peasant proprietors, and during 1941, 1,229 mangoes were top-worked or grafted to the Julie variety, and 21 citrus stocks were grafted or budded to recognised orange varieties.

86. A Peasants' Loans Fund of £500 was established in July; the conditions under which loans would be granted were drawn up by a Committee and published, but no acceptable applications were received.

87. The Pupil Teachers' Examination in Agriculture was held in August, and a total of 19 teachers was examined. The Teachers' Certificate Examination in Nature Study was held in December, and a total of 9 teachers was examined. Reports on the results were later submitted to the Inspector of Schools.

88. A scheme for the reorganisation of school gardens on soil conservation lines was prepared and is being followed as rapidly as the limited staff permits; reasonable progress can be reported. The thirty-third annual examination of the Primary Schools in Agriculture was conducted by the agricultural officers and a report submitted to the Inspector of Schools. A small annual grant has now been made in the estimates for working tools for the schools.

89. A Young Farmers' Club movement started during the year by the Inspector of Schools in co-operation with this Department is making fair progress, and promises to become a powerful stimulant to the development of agriculture in the schools. Caution is necessary in extending this movement, however, until adequate supervision and assistance is available. Three pairs of Flemish Giant rabbits were obtained from Trinidad for these clubs at the end of the year.

90. Six agricultural apprentices were in residence at the Union Agricultural Station during the first quarter of the year, but one left in May and another in December to work on the American Bases; two passed out at the end of the year on completion of their two years' course.

Publications, Correspondence and Organisations.

91. A pamphlet on Yam cultivation was prepared for local distribution and a memorandum on the more important local crops; in addition the usual annual and monthly returns were furnished.

92. 1,089 incoming letters, 862 outgoing letters and 376 Minute Papers (involving 612 replies) were dealt with during the year.

93. A large number of bulletins and reports were regularly received from Departments of Agriculture and other Agricultural Institutions in all parts of the world, and these are gratefully acknowledged.

94. The Agricultural Superintendent or the Assistant Agricultural Superintendent attended numerous meetings during the year.

Official Visitors and Staff.

95. Mr. A. J. Wakefield, Inspector-General of Agriculture in the West Indies paid his first visit to the Colony from 27th January to 17th February, 1941.

96. Professor F. Hardy and Mr. G. Rodrigues of the Imperial College of Tropical Agriculture, Trinidad, paid a short vacation visit to the Colony during April to make a preliminary geological and soil study.

97. The Agricultural Superintendent was absent on duty leave in Trinidad from 29th July to 8th November, during which period Mr. G. B. Gregory, Assistant Agricultural Superintendent, assumed charge of the Department.

Legislation Affecting Agricultural Industries.

98. New Legislation passed during 1940 was as follows:-

Excise Duty (Sugar) Ordinance No. 1 of 1941—to impose an excise duty on sugar produced or manufactured in the Colony.

Sugar Control (Amendment) Ordinance No. 3 of 1941—to amend the Sugar Control Ordinance, 1938.

Animal Disease (Amendment) Ordinance No. 12 of 1941—to amend the Animal Disease Ordinance.

Cattle (Branding and Butchering) (Amendment) Ordinance No. 14 of 1941—to amend the new law relating to the prevention of cattle stealing.

Lime Products Cess (Amendment) Ordinance No. 22 of 1941—to amend the Lime Products Cess Ordinance, 1937.

Statutory Rules and Orders No. 66 of 1941—Animal Disease Regulations.

Statutory Rules and Orders No. 16 of 1941—Cotton Ordinance—Promulgating Proclamation in force 8. 4. 41.

Statutory Rules and Orders No. 17 of 1940—Cotton Ordinance—Close season (area)—Gros Islet, Choiseul, Laborie, Vieux-Fort, Micoud, from 8. 4. 41 to 31. 8. 41.

Statutory Rules and Orders No. 26 of 1941—Cotton Ordinance—Close season (area) Proclamation—Praslin from 3. 5. 41 to 31. 8. 41.

Statutory Rules and Orders No. 27 of 1941—Cotton Regulations—General.

Statutory Rules and Orders No. 4 of 1941—Sugar Control (Quota and local consumption) Order—sugar, honey, molasses, export quota, local price (sugar) contributors or cane farmers.

Statutory Rules and Orders No. 65 of 1941—Labour (Minimum Wage) (Agricultural Labourers) Order.

RAINFALL RETURNS, 1941.

Observation Stations.	Jan.	Feb.	Mch.	Apr.	May.	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Maximum in one day and date.		No of days of rain.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.		
*Gros Islet Village ..	...	...	1·60	4·44	4·67	3·85	7·63	10·47	13·47	7·03	15·87	3·02	72·05	3·17	2nd Nov.	184
Cap Estate ...	·90	·63	1·76	2·94	2·03	1·48	2·84	2·32	4·53	2·78	10·00	2·02	34·23	2·00	13th July	110
Castries, Corinth ,, ...	3·83	·35	3·34	6·67	3·62	6·90	12·34	12·66	11·99	13·32	19·42	4·62	99·06	4·75	,,	191
Marquis Estate ...	1·00	·83	3·96	5·32	3·73	5·14	9·59	10·78	11·28	7·42	17·40	3·08	79·53	3·83	,,	103
†Union Experimental Stn.	1·79	·43	4·13	3·67	4·19	5·23	10·94	9·42	10·30	9·69	14·80	2·43	77·02	3·93	,,	244
Choc Estate ..	1·93	·31	2·54	2·84	5·62	3·49	9·48	6 27	7·41	6·55	12·11	2·40	60 95	3·07	9th Nov.	133
†King George V Mem. Park	1·98	·52	3·17	3·22	4·38	4·76	14·07	12·86	8·37	10·26	15·59	5·39	84·57	5·87	13th July	209
The Barracks, Vigie ...	·88	·74	2·50	2·97	4·06	3·93	10·94	9·94	9·56	8·93	12·94	2·91	70·30	4·27	,,	169
Soucis Est., Cul-de-Sac	2·10	·48	3·76	4·75	3·52	6·51	12·41	9·01	7·99	9·70	22·63	5·96	88·82	3·50	10th Nov.	169
Crown Lands Est., ,,	2·01	1·15	3·30	5·58	4·35	5·73	12·62	12·28	10 89	10·68	24·99	2·93	96·51	4·50	4 & 10th Nov.	216
Mont D'Or Est., Roseau	1·41	·44	3·38	3·18	3·16	6·79	7·85	8·12	10·20	8·17	19·92	4·20	76·82	2·80	9th June	195
Belair Estate, ,, ...	1·63	·31	1·25	2·85	2·12	3·78	6·43	6·48	7·12	5·87	15·18	2·50	55·52	2·25	11th Nov.	253
Vanard ,, ,, ...	1·75	·62	5·39	4·91	3·76	7·72	11·93	9·20	8·88	7·99	19·88	5·19	87·22	3·00	9th June	169
Roseau ,, ,, ...	1·50	·45	3·28	3·04	3·17	5·82	9·83	7·33	10·08	8·37	17·33	3·85	74·05	2·76	,,	214
†Barre de l'Isle Nursery	2·61	·78	5·31	7·38	3·37	8·15	11·65	10·59	13·71	10·08	23·44	6·72	103·79	3·67	4th Nov.	210
Soufrière, La Perle Estate	2·10	·70	3·23	3·69	2·95	5·57	11·47	8·71	8·62	10·01	19.86	5·06	81·97	3·80	9th Nov.	197
Ruby Estate ...	2·10	·76	3·18	4·43	2·60	6·59	11·46	9·50	6·45	8·09	18·26	5·32	78·74	3·26	11th Nov.	132
Union Vale ,, ...	1·37	1·10	2·40	4·04	2·90	4·50	9·39	4·80	6·90	5·24	16·34	4·41	63·39	3·59	13th Sept.	260
Beausejour ,, ...	2·58	1·47	3·45	6·03	4·31	6·84	11·80	8·72	10·48	9·25	19·98	5·59	90·50	5 85	9th Nov.	287
Belle Plaine ,,	2·92	1·64	3·95	6·58	4·37	7·48	12·72	9·71	11·24	9·62	20·00	6·85	97·08	6·94	,,	278
Rabot Estate ...	2·89	1·30	3·04	4·18	3·32	6·51	11·32	7·64	12·10	9·17	19·73	5·87	87·07	3·80	10th Nov.	304
†Rabot Nursery ...	2·69	1·14	3·15	4·30	3·54	7·07	11·74	8·63	12·26	8·88	18·64	5·58	87·62	4·10	,,	274
†Quilesse ,, ...	4·59	1·72	6·98	10·21	4·75	7·92	17·84	14·90	14·55	12·50	27·51	7·06	130·53	5·45	9th July	304
Choiseul, Morne Lezard Est.	1·90	1·17	2·67	4·92	4·17	4·53	8·69	6·44	9·15	8·34	14·16	6 27	72·41	6·20	10th Nov.	119
Park Estate ..	2·00	1·75	3·48	5·55	3·34	5·94	11·16	8·72	9·65	7·99	19·01	5·00	83·59	3·70	,,	238
Woodlands Estate ...	2·75	1·12	3·87	6·79	4·61	6·98	13·85	12·05	12·30	8·45	20·60	5·84	99·21	4·32	,,	241
Londonderry Estate ...	1·85	·80	2·95	4·40	3·65	4·15	7·90	6 ·20	10·05	6·75	18·50	5·80	73·00	4·80	,,	90
Balembouche Estate ...	2·00	·80	1·71	3·88	3·66	2·62	9·50	4·15	7·15	5·78	13·38	2·77	57·40	4·86	,,	107
Laborie, Giraud Estate ...	2·17	1·51	3·34	5·93	4·47	5·05	9·77	8·43	10·76	11·06	22·23	5·48	90·20	5·75	,,	119
Black Bay Estate ...	1·26	1·73	2·49	4·93	1·75	3·12	7·90	5·16	8·28	8·30	13·95	2 29	61·16	3·16	,,	149
Vieux-Fort, Moule-à-Chique	·40	1·83	1·41	3·76	2·50	1·50	6·31	4·56	7·08	7·12	13·76	1·79	52·02	3·83	,,	109
St. Urbain Plantation...	1·34	·82	1 86	4·03	1·07	2·36	8·77	4·77	11·46	5·83	16·68	1·55	60·54	6·22	,,	127
Retraite Estate ...	1·22	1·42	1·89	3·52	1·97	2·67	7·51	6·76	9·86	6·52	15·59	2·46	61·39	4·50	,,	147
Vieux-Fort Factory ..	·97	1·67	1·88	3·64	2·52	2·15	8·35	5·46	8·55	8·26	16·84	1·48	61·77	4·70	,,	113
Beasejour Estate ...	1·38	·81	2·10	4·27	·95	2·46	8·26	6·39	10·39	8·10	17·72	1·87	64·70	6·22	,,	127
Micoud, Troumassée Est.	1·02	·50	·75	3·40	1·85	4·45	10·80	6·50	11·09	6·62	18·00	4·10	69·08	6·25	,,	67
Mamiku Estate ...	1·55	·56	2·43	5·37	2·80	5·31	7·75	8·30	8·89	3·15	17·45	3·16	66·72	4·16	,,	224
Fonds Estate ...	1·34	·53	1·59	2·99	2·59	3·72	7·58	7·33	9·24	7·09	14·20	3·62	61·81	6 35	,,	219
Dennery, Prospect Est. ..	2·59	·59	3·20	5·05	2·77	4·86	9·15	9·17	11·17	4·34	21·53	4·70	79·12	4·62	4th Nov.	259
Border Estate ...	1·02	·37	2·33	3·21	2·32	6·54	11 61	15·23	15·13	5·93	21·57	5·74	91·00	4·15	16th Aug.	274
La Caye Estate ...	·99	·36	3·06	3·56	2·22	4·95	8·01	9 13	8·45	4·48	15·21	4·20	64·62	3,08	4th Nov.	229
Ressource Estate ...	1·81	·60	2·13	3·42	2·53	5·37	9·04	10·06	8·47	6·05	14·60	6·77	70·85	3·11	,,	215

* Record not complete. † Departmental.

Maxima— Quilesse Nursery. 130·53 — Belle Plaine Estate. 6·94—9th Nov. — Quilesse and Rabot Estate—304.

3rd March, 1942.

E. T. WARD, *Agricultural Superintendent.*

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